

SECTION II. INSTALLATION

7.2.1 INTRODUCTION

The ASOS present weather sensor, commonly referred to as the LEDWI or Light Emitting Diode Weather Identifier, has a lightweight, modular design which allows for easy installation. The sensor is normally shipped partially assembled in three separate boxes. The boxes contain the sensor frame, main electronics enclosure, and mounting column. This section provides instructions for installing all of these present weather sensor assemblies. The procedures assume that the sensor pad support pedestal has been previously installed.

7.2.2 ASSEMBLY

The main electrical enclosure, frame assembly, and mounting column are preassembled units and do not require any additional assembly prior to installation. The present weather sensor is mounted to the support column using a hinge plate assembly. The hinge plate assembly provides easy access to the present weather sensor receiver and transmitter assemblies by permitting the present weather sensor to be lowered to a horizontal position.

7.2.3 INSTALLING THE PRESENT WEATHER SENSOR

The present weather sensor is installed on the sensor pad support pedestal shown in Section 7.2.1 using the procedures in table 7.2.1.

Table 7.2.1. Installing Present Weather Sensor

Step	Procedure
	<p>Tools required:</p> <ul style="list-style-type: none"> 15/16-inch wrench 3/4-inch wrench 9/16-inch wrench Large flat-tipped screwdriver No. 1 Phillips screwdriver <p><u>WARNING</u></p> <p>Death or severe injury may result if power is not removed from sensor prior to performing installation procedures. Ensure that heater and primary power circuit breakers supplying power to sensor are set to off (right) positions.</p>
1	Inside equipment cabinet, ensure that circuit breakers on present weather sensor circuit breaker module are set to off (right) position.
2	<p>Open hinge plate and position on mounting pedestal. For most sites, orient hinge plate so that sensor will tilt backward away from walkway (hinge is opposite walkway).</p> <p>NOTE</p> <p>Lanyard must be oriented so that when hinge plate is opened, lanyard falls in hinge plate cutouts.</p>
3	Using one 5/8-inch bolt, one nut, one lockwasher, and three flat washers, secure front of hinge plate to pedestal, attaching one end of cable lanyard. Bolt is inserted from top down through pedestal, with one flat washer under bolt head. On the underside of pedestal, lanyard opening must be secured between two flat washers, with lockwasher and nut on outside. Do not fully tighten hardware.

Table 7.2.1. Installing Present Weather Sensor - CONT

Step	Procedure
4	Install three more sets of mounting hardware (bolt, two flat washers, lockwasher, and nut) on rear, left, and right mountings of hinge plate. Tighten all four sets of mounting hardware.
5	Install washer on each bolt and slide four mounting bolts up from bottom of the top hinge plate. Temporarily install nut on each bolt and close hinge plate. Install hinge plate locking pin to hold hinge plate in closed position.
6	Remove nuts from four mounting bolts. Position enclosure support on top of four mounting bolts, taking care to properly position enclosure support so that it faces sensor pad walkway.
7	Using two flat washers, one lockwasher, and one nut, secure front of hinge plate to sensor support pole, attaching other end of cable lanyard. Lanyard opening must be secured between two flat washers, with lockwasher and nut on outside. Do not fully tighten hardware. NOTE Lanyard must be oriented so that when hinge plate is opened, lanyard falls in hinge plate cutouts.
8	Install remaining sets of mounting hardware (flat washers, lockwasher, and nut) on rear, left, and right of sensor support pole. Tighten all four sets of mounting hardware. WARNING With locking pin removed from hinge plate, sensor is not firmly locked in upright position. Death or severe injury may result if personnel are not kept out of travel path of sensor.
9	Lower sensor support pole on hinge plate as follows: a. Remove locking pin from front part of hinge plate. b. From rear of sensor, firmly grasp support pole with both hands and carefully lower support pole on hinge until lanyard catches and supports weight of support pole.
10	Tighten bolts securing sensor mounting post to hinge plate.
11	Referring to Section 7.2.2 and using 3/4-inch wrench, install but do not tighten three 1/2-inch mounting bolts and three rubber strips using six flat washers, nine neoprene washers, nine lockwashers, and three nuts to secure frame mounting plate to top of mounting column. Be sure to orient two flanges so that two 10-32 mounting holes for short grounding strap are aligned.
12	Tighten three mounting bolts quarter turn past finger tight (enough to slightly compress split lockwashers, but not enough to compress neoprene washers to less than 75% of original thickness).
13	Install 10-32 X 0.5 screw, lockwasher, and flat washer securing ground strap to flanges on mounting plate and mounting column.
14	Feed frame assembly cables from bottom of frame assembly down into mounting column and gently lower the frame assembly on to mounting column (Figure 7.2.1).
15	At mounting column access hole (below mount for main electrical enclosure), pull free ends of two frame assembly cables and frame assembly ground wire out of mounting column.
16	Position frame so that sensor head piece with horizontal slotted mask is facing north ($\pm 10^\circ$). Raise frame assembly up so that stem of frame is approximately 1/4 inch above bottom of mounting plate (not protruding out of mounting base).
17	Tighten four hex capscrews in collar of mounting base to secure frame. Do not overtighten screws; otherwise, lower end of mounting frame will become distorted and difficult to remove from mounting base.

Table 7.2.1. Installing Present Weather Sensor - CONT

Step	Procedure																		
18	<p>Position main electrical enclosure on channel of mounting column. Using 9/16-inch wrench, install 3/8-inch bolt, two flat washers, lockwasher, and nut securing enclosure.</p> <div><div>WARNING</div><p>With locking pin removed from hinge plate, sensor is not firmly locked in upright position. Death or severe injury may result if personnel are not kept out of travel path of sensor.</p></div>																		
19	<p>Raise present weather sensor on hinge plate as follows:</p> <div><div>a.</div><div>From rear of sensor, firmly grasp support pole with both hands and carefully raise sensor on hinge into upright position.</div></div> <div><div>b.</div><div>Install locking pin into front of hinge plate.</div></div>																		
20	Connect frame cable connectors P4 and P5 to connectors J4 and J5 on main electrical enclosure.																		
21	Connect frame assembly (long white) ground wire and site ground wire to ground wire stud located on bottom of main electrical enclosure.																		
22	Using large flat-tipped screwdriver, open main electrical enclosure access door.																		
23	Using No. 1 Phillips screwdriver, remove four screws and lockwashers securing access cover to ac junction box.																		
24	Remove access cover from ac junction box.																		
25	<p>Connect ac power wiring to terminal board in ac junction box according to the following connection chart:</p> <table><tr><td><u>Wire color</u></td><td><u>Terminal</u></td><td><u>Function</u></td></tr><tr><td>Black</td><td>TB1-1</td><td>120 vac (electronics)</td></tr><tr><td>White</td><td>TB1-2</td><td>Neutral (electronics)</td></tr><tr><td>Green</td><td>TB1-3</td><td>Chassis ground</td></tr><tr><td>Red</td><td>TB1-4</td><td>120 vac (heater)</td></tr><tr><td>Yellow</td><td>TB1-5</td><td>Neutral (heaters)</td></tr></table>	<u>Wire color</u>	<u>Terminal</u>	<u>Function</u>	Black	TB1-1	120 vac (electronics)	White	TB1-2	Neutral (electronics)	Green	TB1-3	Chassis ground	Red	TB1-4	120 vac (heater)	Yellow	TB1-5	Neutral (heaters)
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26	Remove protective plastic covers from fiberoptic cable connectors on underside of fiberoptic module.																		
27	Connect RX connector on fiberoptic cable to RX connector on fiberoptic module (RX connector on module is nearest DB-9 electrical connector). Connect TX connector on fiberoptic cable to remaining connector on fiberoptic module.																		
28	Using large adjustable wrench and hardware supplied, connect flexible conduit to main electrical enclosure.																		
29	Using No. 1 Phillips screwdriver, install four screws and lockwashers securing access cover to ac junction box.																		
30	Calibrate present weather sensor in accordance with table 7.5.2.																		

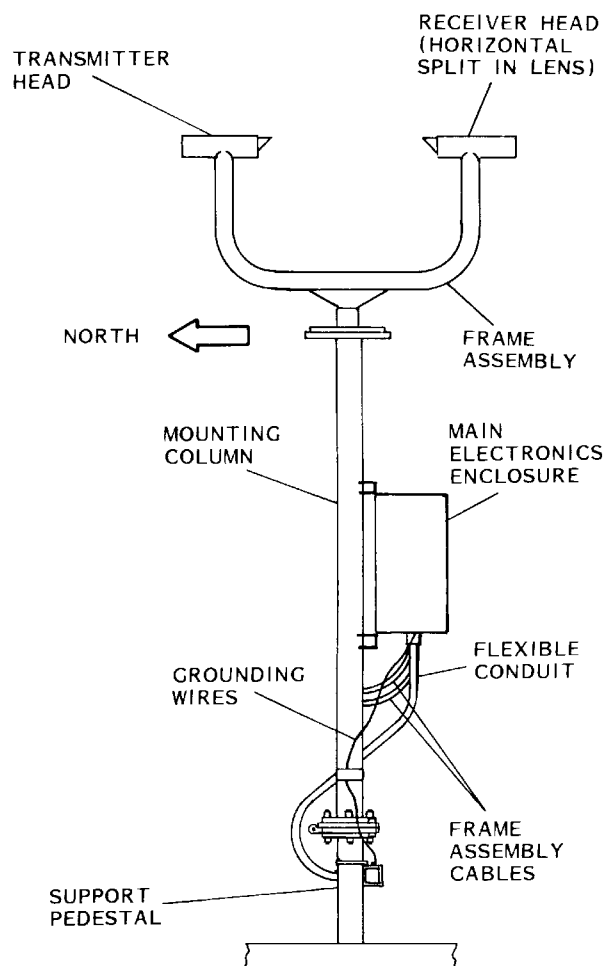


Figure 7.2.1. Present Weather Sensor Mounting Diagram

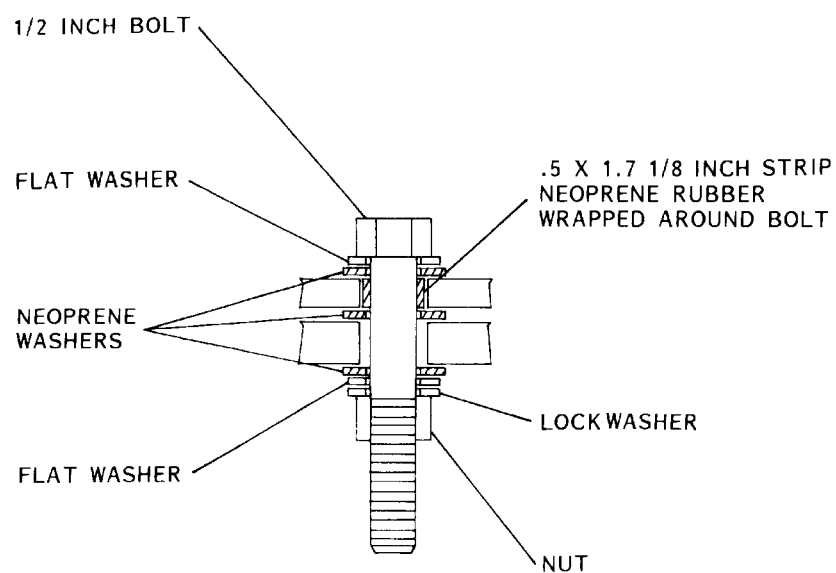


Figure 7.2.2. Frame Assembly Mounting Plate Hardware